Cape Wind submits the following revisions to the approved February 2011 Cape Wind Construction and Operations Plan (COP).

1 – Intra-Array Cable Routes
The February 2011 COP included a location plat that showed the intra-array cable routing. As a result of subsequent engineering evaluation and design, the cable routes have been modified to a small degree. An updated location plat is attached (Attachment 1) and replaces Drawing 1, Sheet 1 of the Location Plat in the COP. In addition, COP section 4.1.4 is updated to list the final total cable length as approximately 70 miles (113 km).

2 – Federal Aviation Administration (FAA) Lighting Plan
The Lease for the Project provides that “In the event that, after the Lease Issuance Date of this lease, the Federal Aviation Administration (FAA) imposes requirements on the Lessee which supersede those in the FAA Determination above, the Lessee shall comply instead with such superseding post-lease requirements.”

The COP is amended to incorporate the Marking and Lighting Changes (“MLCs”) issued by the FAA on May 25, 2014, which make superseding adjustments to the lighting of 10 of the initially installed 101 turbines, until such time as the construction of the full 130 turbines is completed in accordance with the FAA’s prior Determinations of No Hazard. Attached hereto as Attachment 2 is the “FAA Interim Navigational Lighting Plan/Season A” which shows the first 101 turbines to be constructed in Season A and the associated interim navigational lighting thereof as required by the MLCs. The interim marking and lighting changes to the 10 turbines subject to the MLCs are summarized as follows:

2012-WTE-337-OE

2012-WTE-362-OE
Since, as anticipated by the Lease, the FAA requirements are expected to change periodically throughout the life of the Project, this COP revision provides that the Project will at all times conform to the FAA requirements that are in effect from time to time, which requirements are incorporated by reference and may be found via the following hyperlink to the website of the FAA:
https://oeaaa.faa.gov/oeaaa/portal.jsp (search archives) and listed under Aeronautical Study Nos 2012-WTE-322-OE through 2012-WTE-451-OE.

3 – Tekmar Cable Protection System
As originally contemplated in the COP (Section 4.1.3.2), the wind turbine generator (WTG) foundations would have J-tubes for transitioning the cables from the seabed into the foundation termination points. The updated design includes the J-tubes on the ESP, but the external J-tubes are removed from the transition piece on those turbines where water depths allow for cable entry directly into the monopile.

The cable will enter the monopile at a predetermined level above the scour protection and travel through the interior of the monopile up to the transition piece sealed deck hang-off
point for the cables. The area from where the cable exits the seabed and transits through the scour protection to the point at which it enters the monopile or J-tube will utilize the cable protection system (CPS) Tekmar/Teklink®.

Cape Wind plans to preinstall the cable protection system following the installation of the scour protection filter layer and foundation and prior to the installation of the final rock armor scour protection resulting in the cable protection system being positioned between the filter and rock armor layer. The cable installer will then utilize the cable protection system as a conduit to pull the cable through and into the wind turbine foundation (Figure 1). For the ESP, which utilizes J-tubes and a filter layer, the cable protection system will protect the cable as it transitions from the J-tube over the filter layer into the seabed (Figure 2).
4 – ESP Modifications

The Electric Service Platform (ESP) design in the COP (Section 4.1.5) has advanced and installation procedures have been revised accordingly. The configuration of the ESP’s fixed template-type jacket frame foundation system (COP section 4.1.5) has been revised from the originally proposed single, large, jacket frame anchored with 6 driven foundation piles to an updated design that requires two smaller, separate, jacket frames, each anchored with 4 driven foundation piles (for a total of 8 piles). The diameter of the piles (approximately 42”) will remain unchanged.

The 2011 COP describes the size of the ESP as 100’ by 200’ in plan. Design at that time called for the 1st deck of the ESP to be approximately 39’ above MLLW and rising 49’ to the roof. The revised design is nominally 132’ by 115’ with the first deck approximately 35’ above MLLW and rising 47’ to the roof.

As the result of continued detailed design, engineering, and contractor input, fewer transformers are required to accommodate the total output of power generated by the Project. Rather than requiring four (4) transformers with a total of 40,000 gallons of transformer cooling oil (as noted on p. 15 of the Oil Spill Response Plan - Appendix A of the COP and elsewhere), the revised design of the ESP specifies only three (3) transformers with a total of approximately 30,000 gals of transformer cooling oil.

The COP (p. 84) describes the installation of the ESP jackets as follows: “The jacket will be transported to the site on a jack up transport barge. Once on site, the jacket is expected to be lifted from the transport barge by a crane mounted on a separate jack up barge”. As described above, the revised design involves two jackets. The plan is to transport them as
described, but install them from a floating rather than jack up barge. The topside installation procedure is a float-over and remains as described in the COP.

5 – Potential Drilling Through Boulders

In addition to the installation plans described in COP section 4.1.3, in the event that a boulder is encountered during the installation of a monopile and the decision is taken to utilize a drill to clear the way for the pile to be advanced, a procedure similar to the following may be used.

A drill similar to the one shown in the sketch (Figure 3) will be lifted over the monopile and lowered to the soil plug present at approximately the seabed elevation.

As the drill is rotated and advanced through the overburden and to the boulder, a reverse circulation (airlift) process will be used to remove the cuttings in a controlled manner through the center drill pipe. The monopile will be kept continually charged with water as compressed air is injected into the center pipe just above the cutting heads. Driven by the water pressure and the rapid expansion of the injected air, an air-water mixture will quickly flow upwards in the drill pipe, pulling the drill cuttings along with the flow. The cross-flow of water from the drill annulus below the full-face bit will carry drill cuttings to the center pipe and subsequently to the surface for disposal by appropriate means.

It may be necessary to deploy under-reaming bits to clear the boulder from below the pile tip, and once the obstruction has been passed, the drill will be retracted and the monopile will be advanced again by a hydraulic or vibratory hammer.

Figure 3

6 – Potential Phased Development

Section 2.3 of the COP is updated to include Cape Wind’s plan to implement the Project over multiple seasons in a single mobilization process (i.e., with no expected demobilization process or interim period of inactivity), but with the potential for an interim period between construction seasons. The first season of installation (“Season A”) consists of the full infrastructure for the entire 130 WTG project and installation of the first 101 turbines. Cape Wind’s schedule is for the installation of the remaining 29
turbines to be implemented in the next following construction season (“Season B”). The Season A and Season B turbines are included in the updated location plat (Attachment 1). Although it would be contrary to the expectation of Cape Wind, there is a potential that an unexpected interim period could occur between the activities of Season A and Season B and, in such case, CWA would pursue the Season B WTG installations in the next following construction season.